



Queensland University of Technology_ST25.txt
SEQUENCE LISTING

Queensland University of Technology

<120> Protein expression

<130> S81032821

<140> PCT/AU2004/001461

<141> 2004-10-22

<150> 2003905886

<151> 2003-10-24

<160> 34

<170> PatentIn version 3.4

<210> 1

<211> 50

<212> PRT

<213> Lactobacillus fermentum

<400> 1

Asp Thr Ile Tyr Thr Val Gln Ser Gly Asp Thr Leu Ser Gly Ile Ser
1 5 10 15

Tyr Lys Phe Ala Lys Asp Asn Ser Met Ile Asn Asp Leu Ala Lys Lys
20 25 30

Asn Asn Ile Gln Asp Ile Asn Lys Ile Phe Val Gly Gln Lys Leu Ile
35 40 45

Ile Lys
50

<210> 2

<211> 81

<212> PRT

<213> Lactobacillus fermentum

<400> 2

Ser Tyr Thr Ser Asn Ala Ser Gly Ser Glu Ala Ala Ala Lys Ala Trp
1 5 10 15

Ile Ala Gly Arg Glu Ser Gly Gly Asn Tyr Asn Ala Thr Asn Gly Gln
20 25 30

Tyr Ile Gly Lys Tyr Gln Leu Ala Ala Ser Tyr Leu Gly Gly Asp Tyr
35 40 45

Ser Pro Ala Asn Gln Glu Arg Val Ala Asp Gln Tyr Val Ala Ser Arg
50 55 60

Tyr Gly Ser Trp Thr Ala Ala Gln Gln Phe Trp Gln Ala Asn Gly Trp
65 70 75 80

Tyr

<210> 3
 <211> 44
 <212> PRT
 <213> Lactobacillus fermentum

<400> 3

Ser Asp Gly Glu Ile Gln Glu Tyr Asn Ala Gln Asn Ala Ala Asn Ala
 1 5 10 15

Asn Val Ala Asn Asn Asn Thr Gln Ala Thr Gln Gln Gln Thr Ala Gln
 20 25 30

Ala Gln Pro Gln Gln Ala Gln Ser Gln Ala Asn Gln
 35 40

<210> 4
 <211> 30
 <212> PRT
 <213> Lactobacillus fermentum

<400> 4

Met Ile Ser Lys Lys Asn Phe Ala Lys Val Ser Ala Thr Leu Gly Ala
 1 5 10 15

Val Ala Leu Gly Val Ser Ala Thr Ala Thr Ala Ala Asn Ala
 20 25 30

<210> 5
 <211> 175
 <212> PRT
 <213> Lactobacillus fermentum

<400> 5

Asp Thr Ile Tyr Thr Val Gln Ser Gly Asp Thr Leu Ser Gly Ile Ser
 1 5 10 15

Tyr Lys Phe Ala Lys Asp Asn Ser Met Ile Asn Asp Leu Ala Lys Lys
 20 25 30

Asn Asn Ile Gln Asp Ile Asn Lys Ile Phe Val Gly Gln Lys Leu Ile
 35 40 45

Ile Lys Ser Asp Gly Glu Ile Gln Glu Tyr Asn Ala Gln Asn Ala Ala
 50 55 60

Asn Ala Asn Val Ala Asn Asn Asn Thr Gln Ala Thr Gln Gln Gln Thr
 65 70 75 80

Ala Gln Ala Gln Pro Gln Gln Ala Gln Ser Gln Ala Asn Gln Ser Tyr
 85 90 95

Queensland University of Technology_ST25.txt

Thr Ser Asn Ala Ser Gly Ser Glu Ala Ala Ala Lys Ala Trp Ile Ala
100 105 110

Gly Arg Glu Ser Gly Gly Asn Tyr Asn Ala Thr Asn Gly Gln Tyr Ile
115 120 125

Gly Lys Tyr Gln Leu Ala Ala Ser Tyr Leu Gly Gly Asp Tyr Ser Pro
130 135 140

Ala Asn Gln Glu Arg Val Ala Asp Gln Tyr Val Ala Ser Arg Tyr Gly
145 150 155 160

Ser Trp Thr Ala Ala Gln Gln Phe Trp Gln Ala Asn Gly Trp Tyr
165 170 175

<210> 6
<211> 205
<212> PRT
<213> Lactobacillus fermentum

<400> 6

Met Ile Ser Lys Lys Asn Phe Ala Lys Val Ser Ala Thr Leu Gly Ala
1 5 10 15

Val Ala Leu Gly Val Ser Ala Thr Ala Thr Ala Ala Asn Ala Asp Thr
20 25 30

Ile Tyr Thr Val Gln Ser Gly Asp Thr Leu Ser Gly Ile Ser Tyr Lys
35 40 45

Phe Ala Lys Asp Asn Ser Met Ile Asn Asp Leu Ala Lys Lys Asn Asn
50 55 60

Ile Gln Asp Ile Asn Lys Ile Phe Val Gly Gln Lys Leu Ile Ile Lys
65 70 75 80

Ser Asp Gly Glu Ile Gln Glu Tyr Asn Ala Gln Asn Ala Ala Asn Ala
85 90 95

Asn Val Ala Asn Asn Asn Thr Gln Ala Thr Gln Gln Gln Thr Ala Gln
100 105 110

Ala Gln Pro Gln Gln Ala Gln Ser Gln Ala Asn Gln Ser Tyr Thr Ser
115 120 125

Asn Ala Ser Gly Ser Glu Ala Ala Ala Lys Ala Trp Ile Ala Gly Arg
130 135 140

Glu Ser Gly Gly Asn Tyr Asn Ala Thr Asn Gly Gln Tyr Ile Gly Lys
145 150 155 160

Tyr Gln Leu Ala Ala Ser Tyr Leu Gly Gly Asp Tyr Ser Pro Ala Asn
 165 170 175

Gln Glu Arg Val Ala Asp Gln Tyr Val Ala Ser Arg Tyr Gly Ser Trp
 180 185 190

Thr Ala Ala Gln Gln Phe Trp Gln Ala Asn Gly Trp Tyr
 195 200 205

<210> 7
 <211> 90
 <212> DNA
 <213> Lactobacillus fermentum

<400> 7
 atgatttcta agaaaaactt tgctaaagta tctgctactc ttggtgcagt ggccttaggt 60
 gttagtgcaa cggctactgc tgctaattgct 90

<210> 8
 <211> 150
 <212> DNA
 <213> Lactobacillus fermentum

<400> 8
 gacactatct acaccgtaca aagtgggtgac acactttcag gtatttctta caaatttgct 60
 aaagacaaca gtatgatcaa tgatcttgct aagaagaaca atattcaaga tattaacaag 120
 atttttggtg gtcaaaagtt aatcatcaag 150

<210> 9
 <211> 132
 <212> DNA
 <213> Lactobacillus fermentum

<400> 9
 agcgatggtg aaattcaaga atacaatgct caaaatgcag ctaatgcaaa tgtagcaaac 60
 aacaatactc aagctacaca acaacaaact gctcaagcac aacctcaaca agcacaagc 120
 caagctaacc aa 132

<210> 10
 <211> 246
 <212> DNA
 <213> Lactobacillus fermentum

<400> 10
 agctacactt caaatgcttc aggttcagaa gctgctgcta aagcttggat tgccggtcgt 60
 gaatcaggtg gtaactacaa cgccacaaac ggtcaatata ttggtaagta ccaattagct 120
 gcatcatacc ttggtggtga ctactacca gctaaccaag aacgcgttgc tgaccaatac 180
 gttgcaagtc gttacggttc ttggactgct gcccaacaat tctggcaagc aaacggttgg 240
 tactaa 246

<210> 11
 <211> 528

Queensland University of Technology_ST25.txt

<212> DNA

<213> Lactobacillus fermentum

<400> 11

gacactatct acaccgtaca aagtgggtgac acactttcag gtattttctta caaatttgct	60
aaagacaaca gtatgatcaa tgatcttgct aagaagaaca atattcaaga tattaacaag	120
atTTTTgttg gtcaaaagtt aatcatcaag agcgatggtg aaattcaaga atacaatgct	180
caaaatgcag ctaatgcaaa tgtagcaaac aacaatactc aagctacaca acaacaaact	240
gctcaagcac aacctcaaca agcacaaagc caagctaacc aaagctacac ttcaaagtct	300
tcaggttcag aagctgctgc taaagcttggt attgccggtc gtgaatcagg tggtaactac	360
aacgccacaa acggtcaata cattggtaag taccaattag ctgcatcata ccttggtggt	420
gactactcac cagctaacca agaacgcgtt gctgaccaat acgttgcaag tcgttacggt	480
tcttggtgctg ctgccaaca attctggcaa gcaaacggtt ggtactaa	528

<210> 12

<211> 618

<212> DNA

<213> Lactobacillus fermentum

<400> 12

atgatttcta agaaaaactt tgctaaagta tctgctactc ttggtgcagt ggccttaggt	60
gtagtgcaa cggtactgct tgctaagtct gacactatct acaccgtaca aagtgggtgac	120
acactttcag gtattttctta caaatttgct aaagacaaca gtatgatcaa tgatcttgct	180
aagaagaaca atattcaaga tattaacaag atTTTTgttg gtcaaaagtt aatcatcaag	240
agcgatggtg aaattcaaga atacaatgct caaaatgcag ctaatgcaaa tgtagcaaac	300
aacaatactc aagctacaca acaacaaact gctcaagcac aacctcaaca agcacaaagc	360
caagctaacc aaagctacac ttcaaagtct tcaggttcag aagctgctgc taaagcttggt	420
attgccggtc gtgaatcagg tggtaactac aacgccacaa acggtcaata cattggtaag	480
taccaattag ctgcatcata ccttggtggt gactactcac cagctaacca agaacgcgtt	540
gctgaccaat acgttgcaag tcgttacggt tcttggtgctg ctgccaaca attctggcaa	600
gcaaacggtt ggtactaa	618

<210> 13

<211> 90

<212> DNA

<213> Lactobacillus fermentum

<220>

<221> misc_feature

<222> (9)..(9)

<223> any nucleotide

<220>

<221> misc_feature

<222> (24)..(24)

<223> any nucleotide

```

<220>
<221> misc_feature
<222> (30)..(30)
<223> any nucleotide

<220>
<221> misc_feature
<222> (33)..(33)
<223> any nucleotide

<220>
<221> misc_feature
<222> (36)..(36)
<223> any nucleotide

<220>
<221> misc_feature
<222> (39)..(39)
<223> any nucleotide

<220>
<221> misc_feature
<222> (42)..(42)
<223> any nucleotide

<220>
<221> misc_feature
<222> (45)..(45)
<223> any nucleotide

<220>
<221> misc_feature
<222> (48)..(48)
<223> any nucleotide

<220>
<221> misc_feature
<222> (51)..(51)
<223> any nucleotide

<220>
<221> misc_feature
<222> (54)..(54)
<223> any nucleotide

<220>
<221> misc_feature
<222> (57)..(57)
<223> any nucleotide

<220>
<221> misc_feature
<222> (60)..(60)
<223> any nucleotide

<220>
<221> misc_feature
<222> (63)..(63)
<223> any nucleotide

<220>
<221> misc_feature
<222> (66)..(66)
<223> any nucleotide

<220>
<221> misc_feature
<222> (69)..(69)

```

<223> any nucleotide

<220>

<221> misc_feature

<222> (72)..(72)

<223> any nucleotide

<220>

<221> misc_feature

<222> (75)..(75)

<223> any nucleotide

<220>

<221> misc_feature

<222> (78)..(78)

<223> any nucleotide

<220>

<221> misc_feature

<222> (81)..(81)

<223> any nucleotide

<220>

<221> misc_feature

<222> (84)..(84)

<223> any nucleotide

<220>

<221> misc_feature

<222> (90)..(90)

<223> any nucleotide

<400> 13

atgathwsna araaraaytt ygcnaargtn wsngcnacny tnggngcngt ngcnytnngn 60

gtnwsngcna cngcnacngc ngcnaaygcn 90

<210> 14

<211> 150

<212> DNA

<213> Lactobacillus fermentum

<220>

<221> misc_feature

<222> (6)..(6)

<223> any nucleotide

<220>

<221> misc_feature

<222> (15)..(15)

<223> any nucleotide

<220>

<221> misc_feature

<222> (18)..(18)

<223> any nucleotide

<220>

<221> misc_feature

<222> (24)..(24)

<223> any nucleotide

<220>

<221> misc_feature

<222> (27)..(27)

<223> any nucleotide

<220>
 <221> misc_feature
 <222> (33)..(33)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (36)..(36)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (39)..(39)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (42)..(42)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (48)..(48)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (60)..(60)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (72)..(72)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (87)..(87)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (90)..(90)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (129)..(129)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (132)..(132)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (141)..(141)
 <223> any nucleotide

<400> 14
 gayacnatht ayacngtnca rwsngnggay acnytnwsng gnathwsnta yaarttygcn 60
 aargayaayw snatgathaa ygayytngcn aaraaraaya ayathcarga yathaayaar 120
 athttygtng gncaraaryt nathathaar 150

<210> 15
 <211> 132
 <212> DNA
 <213> Lactobacillus fermentum

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (9)..(9)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (30)..(30)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (39)..(39)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (42)..(42)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (48)..(48)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (54)..(54)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (57)..(57)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (69)..(69)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (75)..(75)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (78)..(78)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (90)..(90)
 <223> any nucleotide

<220>

<221> misc_feature
 <222> (93)..(93)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (99)..(99)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (105)..(105)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (114)..(114)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (120)..(120)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (126)..(126)
 <223> any nucleotide

<400> 15
 wsn gayggng arathcarga rtayaaygcn caraaygcng cnaaygchna ygtngcnaay 60
 aayaayacnc argcnacnca rcarcara cn gcncargcnc arccncarca rgncarwsn 120
 cargcnaayc ar 132

<210> 16
 <211> 243
 <212> DNA
 <213> Lactobacillus fermentum

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (9)..(9)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (12)..(12)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (18)..(18)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (21)..(21)
 <223> any nucleotide

```

<220>
<221> misc_feature
<222> (24)..(24)
<223> any nucleotide

<220>
<221> misc_feature
<222> (27)..(27)
<223> any nucleotide

<220>
<221> misc_feature
<222> (33)..(33)
<223> any nucleotide

<220>
<221> misc_feature
<222> (36)..(36)
<223> any nucleotide

<220>
<221> misc_feature
<222> (39)..(39)
<223> any nucleotide

<220>
<221> misc_feature
<222> (45)..(45)
<223> any nucleotide

<220>
<221> misc_feature
<222> (54)..(54)
<223> any nucleotide

<220>
<221> misc_feature
<222> (57)..(57)
<223> any nucleotide

<220>
<221> misc_feature
<222> (60)..(60)
<223> any nucleotide

<220>
<221> misc_feature
<222> (66)..(66)
<223> any nucleotide

<220>
<221> misc_feature
<222> (69)..(69)
<223> any nucleotide

<220>
<221> misc_feature
<222> (72)..(72)
<223> any nucleotide

<220>
<221> misc_feature
<222> (84)..(84)
<223> any nucleotide

<220>
<221> misc_feature
<222> (87)..(87)

```

<223> any nucleotide

<220>

<221> misc_feature

<222> (93)..(93)

<223> any nucleotide

<220>

<221> misc_feature

<222> (105)..(105)

<223> any nucleotide

<220>

<221> misc_feature

<222> (117)..(117)

<223> any nucleotide

<220>

<221> misc_feature

<222> (120)..(120)

<223> any nucleotide

<220>

<221> misc_feature

<222> (123)..(123)

<223> any nucleotide

<220>

<221> misc_feature

<222> (126)..(126)

<223> any nucleotide

<220>

<221> misc_feature

<222> (132)..(132)

<223> any nucleotide

<220>

<221> misc_feature

<222> (135)..(135)

<223> any nucleotide

<220>

<221> misc_feature

<222> (138)..(138)

<223> any nucleotide

<220>

<221> misc_feature

<222> (147)..(147)

<223> any nucleotide

<220>

<221> misc_feature

<222> (150)..(150)

<223> any nucleotide

<220>

<221> misc_feature

<222> (153)..(153)

<223> any nucleotide

<220>

<221> misc_feature

<222> (165)..(165)

<223> any nucleotide

<220>

<221> misc_feature
 <222> (168)..(168)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (171)..(171)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (183)..(183)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (186)..(186)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (189)..(189)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (192)..(192)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (198)..(198)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (201)..(201)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (207)..(207)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (210)..(210)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (213)..(213)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (231)..(231)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (237)..(237)
 <223> any nucleotide

<400> 16
 wsntayacnw snaaygcnws nggnwsngar gcngcngcna argcntggat hgcnggnmgn 60

garwsnggng gnaaytayaa ygcnacnaay ggncartaya thggnaarta ycarytngcn 120

Queensland University of Technology_ST25.txt

gcnwsntayy tngngngnga ytaywsnccn gcnaaycarg armngngtngc ngaycartay	180
gtngcnwsnm gntayggngws ntggacngcn gcncarcart tytggcargc naayggntgg	240
tay	243

<210> 17
 <211> 525
 <212> DNA
 <213> Lactobacillus fermentum

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (15)..(15)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (18)..(18)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (24)..(24)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (27)..(27)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (33)..(33)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (36)..(36)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (39)..(39)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (42)..(42)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (48)..(48)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (60)..(60)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (72)..(72)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (87)..(87)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (90)..(90)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (129)..(129)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (132)..(132)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (141)..(141)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (153)..(153)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (159)..(159)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (180)..(180)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (189)..(189)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (192)..(192)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (198)..(198)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (204)..(204)
 <223> any nucleotide

<220>
 <221> misc_feature

<222> (207)..(207)
<223> any nucleotide

<220>
<221> misc_feature
<222> (219)..(219)
<223> any nucleotide

<220>
<221> misc_feature
<222> (225)..(225)
<223> any nucleotide

<220>
<221> misc_feature
<222> (228)..(228)
<223> any nucleotide

<220>
<221> misc_feature
<222> (240)..(240)
<223> any nucleotide

<220>
<221> misc_feature
<222> (243)..(243)
<223> any nucleotide

<220>
<221> misc_feature
<222> (249)..(249)
<223> any nucleotide

<220>
<221> misc_feature
<222> (255)..(255)
<223> any nucleotide

<220>
<221> misc_feature
<222> (264)..(264)
<223> any nucleotide

<220>
<221> misc_feature
<222> (270)..(270)
<223> any nucleotide

<220>
<221> misc_feature
<222> (276)..(276)
<223> any nucleotide

<220>
<221> misc_feature
<222> (285)..(285)
<223> any nucleotide

<220>
<221> misc_feature
<222> (291)..(291)
<223> any nucleotide

<220>
<221> misc_feature
<222> (294)..(294)
<223> any nucleotide

<220>
 <221> misc_feature
 <222> (300)..(300)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (303)..(303)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (306)..(306)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (309)..(309)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (315)..(315)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (318)..(318)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (321)..(321)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (327)..(327)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (336)..(336)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (339)..(339)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (342)..(342)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (348)..(348)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (351)..(351)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (354)..(354)

<223> any nucleotide

<220>

<221> misc_feature

<222> (366)..(366)

<223> any nucleotide

<220>

<221> misc_feature

<222> (369)..(369)

<223> any nucleotide

<220>

<221> misc_feature

<222> (375)..(375)

<223> any nucleotide

<220>

<221> misc_feature

<222> (387)..(387)

<223> any nucleotide

<220>

<221> misc_feature

<222> (399)..(399)

<223> any nucleotide

<220>

<221> misc_feature

<222> (402)..(402)

<223> any nucleotide

<220>

<221> misc_feature

<222> (405)..(405)

<223> any nucleotide

<220>

<221> misc_feature

<222> (408)..(408)

<223> any nucleotide

<220>

<221> misc_feature

<222> (414)..(414)

<223> any nucleotide

<220>

<221> misc_feature

<222> (417)..(417)

<223> any nucleotide

<220>

<221> misc_feature

<222> (420)..(420)

<223> any nucleotide

<220>

<221> misc_feature

<222> (429)..(429)

<223> any nucleotide

<220>

<221> misc_feature

<222> (432)..(432)

<223> any nucleotide

<220>

<221> misc_feature
<222> (435)..(435)
<223> any nucleotide

<220>
<221> misc_feature
<222> (447)..(447)
<223> any nucleotide

<220>
<221> misc_feature
<222> (450)..(450)
<223> any nucleotide

<220>
<221> misc_feature
<222> (453)..(453)
<223> any nucleotide

<220>
<221> misc_feature
<222> (465)..(465)
<223> any nucleotide

<220>
<221> misc_feature
<222> (468)..(468)
<223> any nucleotide

<220>
<221> misc_feature
<222> (471)..(471)
<223> any nucleotide

<220>
<221> misc_feature
<222> (474)..(474)
<223> any nucleotide

<220>
<221> misc_feature
<222> (480)..(480)
<223> any nucleotide

<220>
<221> misc_feature
<222> (483)..(483)
<223> any nucleotide

<220>
<221> misc_feature
<222> (489)..(489)
<223> any nucleotide

<220>
<221> misc_feature
<222> (492)..(492)
<223> any nucleotide

<220>
<221> misc_feature
<222> (495)..(495)
<223> any nucleotide

<220>
<221> misc_feature
<222> (513)..(513)
<223> any nucleotide

Queensland University of Technology_ST25.txt

```

<220>
<221> misc_feature
<222> (519)..(519)
<223> any nucleotide

<400> 17
gayacnatht ayacngtnca rwsnggngay acnytnwsng gnathwsnta yaarttygcn      60
aargayaayw snatgathaa ygayytngcn aaraaraaya ayathcarga yathaayaar      120
athttygtng gncaraaryt nathathaar wsngayggng arathcarga rtayaaygcn      180
caraaygcng cnaaygcnaa ygtngcnaay aayaayacnc argcnacnca rcarcacaracn     240
gcncargcnc arccncarca rgncarwsn cargcnaayc arwsntayac nwsnaaygcn      300
wsnggnwsng argcngcngc naargcntgg athgcnggngm gngarwsngg nggnaaytay      360
aaygcnacna ayggncarta yathggnaar taycarytng cngcnwsnta yytnggnggn      420
gaytaywsnc cngcnaayca rgarmgngtn gcngaycart aygtngcnws nmgntayggn      480
wsntggacng cngcncarca rttytggcar gcnaayggnt ggtay                      525

```

```

<210> 18
<211> 615
<212> DNA
<213> Lactobacillus fermentum

```

```

<220>
<221> misc_feature
<222> (9)..(9)
<223> any nucleotide

```

```

<220>
<221> misc_feature
<222> (24)..(24)
<223> any nucleotide

```

```

<220>
<221> misc_feature
<222> (30)..(30)
<223> any nucleotide

```

```

<220>
<221> misc_feature
<222> (33)..(33)
<223> any nucleotide

```

```

<220>
<221> misc_feature
<222> (36)..(36)
<223> any nucleotide

```

```

<220>
<221> misc_feature
<222> (39)..(39)
<223> any nucleotide

```

```

<220>
<221> misc_feature
<222> (42)..(42)
<223> any nucleotide

```

<220>

<221> misc_feature
<222> (45)..(45)
<223> any nucleotide

<220>
<221> misc_feature
<222> (48)..(48)
<223> any nucleotide

<220>
<221> misc_feature
<222> (51)..(51)
<223> any nucleotide

<220>
<221> misc_feature
<222> (54)..(54)
<223> any nucleotide

<220>
<221> misc_feature
<222> (57)..(57)
<223> any nucleotide

<220>
<221> misc_feature
<222> (60)..(60)
<223> any nucleotide

<220>
<221> misc_feature
<222> (63)..(63)
<223> any nucleotide

<220>
<221> misc_feature
<222> (66)..(66)
<223> any nucleotide

<220>
<221> misc_feature
<222> (69)..(69)
<223> any nucleotide

<220>
<221> misc_feature
<222> (72)..(72)
<223> any nucleotide

<220>
<221> misc_feature
<222> (75)..(75)
<223> any nucleotide

<220>
<221> misc_feature
<222> (78)..(78)
<223> any nucleotide

<220>
<221> misc_feature
<222> (81)..(81)
<223> any nucleotide

<220>
<221> misc_feature
<222> (84)..(84)
<223> any nucleotide

<220>
 <221> misc_feature
 <222> (90)..(90)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (96)..(96)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (105)..(105)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (108)..(108)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (114)..(114)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (117)..(117)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (123)..(123)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (126)..(126)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (129)..(129)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (132)..(132)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (138)..(138)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (150)..(150)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (162)..(162)
 <223> any nucleotide

<220>
 <221> misc_feature

<222> (177)..(177)
<223> any nucleotide

<220>
<221> misc_feature
<222> (180)..(180)
<223> any nucleotide

<220>
<221> misc_feature
<222> (219)..(219)
<223> any nucleotide

<220>
<221> misc_feature
<222> (222)..(222)
<223> any nucleotide

<220>
<221> misc_feature
<222> (231)..(231)
<223> any nucleotide

<220>
<221> misc_feature
<222> (243)..(243)
<223> any nucleotide

<220>
<221> misc_feature
<222> (249)..(249)
<223> any nucleotide

<220>
<221> misc_feature
<222> (270)..(270)
<223> any nucleotide

<220>
<221> misc_feature
<222> (279)..(279)
<223> any nucleotide

<220>
<221> misc_feature
<222> (282)..(282)
<223> any nucleotide

<220>
<221> misc_feature
<222> (288)..(288)
<223> any nucleotide

<220>
<221> misc_feature
<222> (294)..(294)
<223> any nucleotide

<220>
<221> misc_feature
<222> (297)..(297)
<223> any nucleotide

<220>
<221> misc_feature
<222> (309)..(309)
<223> any nucleotide

<220>
 <221> misc_feature
 <222> (315)..(315)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (318)..(318)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (330)..(330)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (333)..(333)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (339)..(339)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (345)..(345)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (354)..(354)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (360)..(360)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (366)..(366)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (375)..(375)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (381)..(381)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (384)..(384)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (390)..(390)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (393)..(393)

<223> any nucleotide

<220>

<221> misc_feature

<222> (396)..(396)

<223> any nucleotide

<220>

<221> misc_feature

<222> (399)..(399)

<223> any nucleotide

<220>

<221> misc_feature

<222> (405)..(405)

<223> any nucleotide

<220>

<221> misc_feature

<222> (408)..(408)

<223> any nucleotide

<220>

<221> misc_feature

<222> (411)..(411)

<223> any nucleotide

<220>

<221> misc_feature

<222> (417)..(417)

<223> any nucleotide

<220>

<221> misc_feature

<222> (426)..(426)

<223> any nucleotide

<220>

<221> misc_feature

<222> (429)..(429)

<223> any nucleotide

<220>

<221> misc_feature

<222> (432)..(432)

<223> any nucleotide

<220>

<221> misc_feature

<222> (438)..(438)

<223> any nucleotide

<220>

<221> misc_feature

<222> (441)..(441)

<223> any nucleotide

<220>

<221> misc_feature

<222> (444)..(444)

<223> any nucleotide

<220>

<221> misc_feature

<222> (456)..(456)

<223> any nucleotide

<220>

<221> misc_feature
<222> (459)..(459)
<223> any nucleotide

<220>
<221> misc_feature
<222> (465)..(465)
<223> any nucleotide

<220>
<221> misc_feature
<222> (477)..(477)
<223> any nucleotide

<220>
<221> misc_feature
<222> (489)..(489)
<223> any nucleotide

<220>
<221> misc_feature
<222> (492)..(492)
<223> any nucleotide

<220>
<221> misc_feature
<222> (495)..(495)
<223> any nucleotide

<220>
<221> misc_feature
<222> (498)..(498)
<223> any nucleotide

<220>
<221> misc_feature
<222> (504)..(504)
<223> any nucleotide

<220>
<221> misc_feature
<222> (507)..(507)
<223> any nucleotide

<220>
<221> misc_feature
<222> (510)..(510)
<223> any nucleotide

<220>
<221> misc_feature
<222> (519)..(519)
<223> any nucleotide

<220>
<221> misc_feature
<222> (522)..(522)
<223> any nucleotide

<220>
<221> misc_feature
<222> (525)..(525)
<223> any nucleotide

<220>
<221> misc_feature
<222> (537)..(537)
<223> any nucleotide

<220>
 <221> misc_feature
 <222> (540)..(540)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (543)..(543)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (555)..(555)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (558)..(558)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (561)..(561)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (564)..(564)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (570)..(570)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (573)..(573)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (579)..(579)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (582)..(582)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (585)..(585)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (603)..(603)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (609)..(609)
 <223> any nucleotide

<400> 18
 atgathwsna araaraaytt ygcnaargtn wsngcnacny tnggngcngt ngcnytnngn

Queensland University of Technology_ST25.txt

gtnwsngcna cngcnacngc ngcnaaygcn gayacnatht ayacngtnca rwsnggngay	120
acnytnwsng gnathwsnta yaarttygcn aargayaayw snatgathaa ygayytngcn	180
aaraaraaya ayathcarga yathaayaar athtttygtng gncaraaryt nathathaar	240
wsngayggng arathcarga rtayaaygcn caraaygcng cnaaygcnaa ygtngcnaay	300
aayaayacnc argcnacnca rcarcacaracn gcncargcnc arccncarca rgcncarwsn	360
cargcnaayc arwsntayac nwsnaaygcn wsnggnwsng argcngcngc naargcntgg	420
athgcnggngm gngarwsngg nggnaaytay aaygcnacna ayggncarta yathggnaar	480
taycarytng cngcnwsnta yytngngngn gaytaywsnc cngcnaayca rgarmngntn	540
gcngaycart aygtngcnws nmgtayggng wsntggacng cngcncarca rttytggcar	600
gcnaayggnt ggtay	615

<210> 19
 <211> 310
 <212> DNA
 <213> Lactobacillus fermentum

<400> 19 taaagatagt tataaacgga aaataaaggc cggttttgga gcaaatatga aatttttgcg	60
aagaaatcag ctttttttat ttattttttt ataatcatc tgtaaaagt atgcaaaccg	120
aaaacgcaac ccgcacaagg aattagccga ttatgactat aatattttta aagctatatt	180
acaaaaagca aacggagagt agtaaataga aatggtgctg ttacagcttt gtaatattaa	240
gagtgtagta tatagggtgt tgaaacggaa aagataattt gctaaataat aaaggatggt	300
tatttaattt	310

<210> 20
 <211> 150
 <212> DNA
 <213> Lactobacillus fermentum

<400> 20 aataaataag attaatcaat ttatttgcga gactgatgga atattatttc cttctgtctc	60
gcttttttgg gctaatatgt tataatggta gtacttctta tggggatggt tatggattcg	120
acaggtatag gtcgagtttc aactgcgttt	150

<210> 21
 <211> 18
 <212> PRT
 <213> Lactobacillus fermentum

<400> 21	
Asp Thr Ile Tyr Thr Asp His His His His His His Ser Ala Ala Gly	
1 5 10 15	

Ser Arg

Queensland University of Technology_ST25.txt

<210> 22
 <211> 17
 <212> PRT
 <213> Lactobacillus fermentum

<400> 22

Ala Ser Asp Asp Val His His His His His His Ser Ala Ala Gly Ser
 1 5 10 15

Arg

<210> 23
 <211> 28
 <212> DNA
 <213> Lactobacillus fermentum

<220>
 <221> misc_feature
 <222> (14)..(14)
 <223> "n"

<220>
 <221> misc_feature
 <222> (23)..(23)
 <223> "n"

<220>
 <221> misc_feature
 <222> (26)..(26)
 <223> "n"

<400> 23
 aagatccga yacnathtay acngtnca 28

<210> 24
 <211> 26
 <212> DNA
 <213> Lactobacillus fermentum

<400> 24
 cttggatccc tgcaggtcga ctctag 26

<210> 25
 <211> 31
 <212> DNA
 <213> Lactobacillus fermentum

<400> 25
 caggatcctt gatcatactg ttgtctttag c 31

<210> 26
 <211> 18
 <212> DNA
 <213> Lactobacillus fermentum

<400> 26
 aattcgcgcg agcatctc 18

<210> 27
 <211> 21
 <212> DNA
 <213> Lactobacillus fermentum
 <400> 27
 tgcgtttgaa ttattgtttg c 21

<210> 28
 <211> 26
 <212> DNA
 <213> Lactobacillus fermentum
 <400> 28
 atatctagaa accttcctgc tgacct 26

<210> 29
 <211> 50
 <212> DNA
 <213> Lactobacillus fermentum
 <400> 29
 aaactgcaga gtgatgatgg tgatgatgat cggtgtagat agtgtcagca 50

<210> 30
 <211> 40
 <212> DNA
 <213> Lactobacillus fermentum
 <400> 30
 aaactgcagc aggttctcga gacactatct acaccgtaca 40

<210> 31
 <211> 33
 <212> DNA
 <213> Lactobacillus fermentum
 <400> 31
 caggggcccgc tcgacctata cctgtcgaat cca 33

<210> 32
 <211> 31
 <212> DNA
 <213> Lactobacillus fermentum
 <400> 32
 agacctgcag gagactgggt tattcctccc a 31

<210> 33
 <211> 34
 <212> DNA
 <213> Lactobacillus fermentum
 <400> 33
 agactcgagg ttaatcgttg gtgtcagtga ctgt 34

<210> 34
 <211> 15
 <212> PRT
 <213> Lactobacillus fermentum

<400> 34

Asp	Thr	Ile	Tyr	Thr	Val	Gln	Ser	Gly	Asp	Thr	Leu	Ser	Gly	Ile
1				5					10					15